DOCUMENT RESUME

ED 194 906 CS 205 992

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TITLE The Video Parade: Children's Understanding of Characters in the Preschool Years. Technical Report No. 19.
INSTITUTION Harvard Univ., Cambridge, Mass. Harvard Project Zero.
SPONS AGENCY John and Mary R. Markle Foundation, New York, N.Y.: National Inst. of Education (DHEW), Washington, D.C.
PUB DATE Nov 80
GRANT NIE-G-78-0031
NOTE 35p.

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS *Behavioral Science Research: *Characterization: *Child Development: *Childrens Television: Developmental Stages: *Identification: Preschool Children: Preschool Education: Role Perception: *Television Research: Television Viewing

ABSTRACT

A study was conducted to examine young children's perceptions of television characters. Three preschool children were observed intensively for three years, with supplemental information gained from parents' diaries and interviews. As the children watched television and as they engaged in television-related play, their verbal descriptions and comments about television characters were recorded and categorized. From age two to three years, the children were most interested in and adept at naming characters, describing their appearances, and associating them with places, objects, and other television characters. Behavioral and psychological attributes were additional foci of children's descriptions between ages three and four years. By five years of age the children began to discuss the relationships between characters. Their primary emphasis, however, continued to be in the more superficial areas of appearance and behavior. Other developmental trends included increased accuracy in naming, the use of generic labels (person, monster) rather than specific descriptors, increased use of multiple and elaborated behavioral and psychological traits, and the onset of describing interactions between characters (though primarily in unidirectional terms). (Author/RL)

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HARVARD PROJECT ZERO

Longfellow Hall
Graduate School of Education
Harvard University
Cambridge, Mass.

Co-Directors:

Howard Gardner and David Perkins

Technical Report #19

THE VIDEO PARADE:
CHILDREN'S UNDERSTANDING OF CHARACTERS IN THE PRESCHOOL YEARS

by

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Issued: November 1980

C S225-992

Abstract

A study was conducted to examine young children's perceptions of television characters. Three preschool children were observed intensively for three years with supplemental information gained from parent diaries and interviews. The experimenter recorded all verbal descriptions and comments about characters as the children watched television and as they engaged in television-related play.

A complex process is documented wherein children attempt throughout the preschool years to identify and describe television characters and to associate them with each other and their surroundings. The children's observations were categorized under six major headings. These categories ranged from external concerns of identification, appearance, associations and behavior to inferred psychological traits and interactions. Subcategories further defined the degree of complexity of the children's remarks by identifying single, multiple, and elaborated traits.

From age 2 to 3, the children were most interested in and adept at naming characters, describing their appearance and associating them with places, objects and other characters on television. Appearance and associations were joined by behavioral and psychological attributes from age 3 to 4 as foci for the children's descriptions. And finally, by age 5, the children began to discuss the relationships between characters. Their primary emphasis, however, continued to be in the more superficial areas of appearance and behavior.

Other developmental trends include increased accuracy in naming, the use of generic labels (person, monster) rather than specific descriptors; character to character associations; increased use of multiple and elaborated behavioral and psychological traits; and the onset of describing interactions between characters though primarily in unidirectional terms.

The results of the study parallel those of other television research (notably that of Reeves) in the demonstration of a shift in knowledge from external to internal or inferred traits. However, the developmental progression occurs much earlier in these high viewing preschoolers than in their school-aged counterparts. Possible explanations for this trend are discussed.

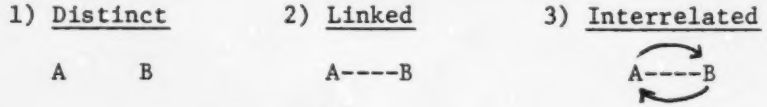
The Video Parade:
Children's Understanding of Characters in the Preschool Years

Introduction

One of the first tasks the young infant must master is the discrimination among faces that appear over the railing of his crib. Likewise, the novice television viewer must learn to differentiate between characters seen on the television screen. To comprehend this world, the child must sort through a formidable mass of people, puppets, and cartoon characters. In fact, the two-year-old may confront more people in one sole day of viewing than he has met in his entire lifetime. The child, of course, cannot manipulate the televised content which differs from his real-life encounters. He cannot ask the characters questions, nor can he bring them back for a second inspection without the cooperation of the producer. For the young child to keep track of the parade of individuals daily marching through his living room is, therefore, no small accomplishment.

How does the child of two or three begin to make sense of this parade? What cognitive abilities must he call upon to lend form to the masses? Do these strategies change over time? And of utmost importance for the researcher, how can this ongoing process be monitored and charted? One key to this puzzle can be found in the child's own comments. To understand why the character behaves as it does, the child has only himself and the people in his environment to turn to for additional information. We have recorded such comments within the context of a three year longitudinal study of children's television viewing skills and have derived a structure reflecting their increasing depth and complexity.

Using investigations of how children perceive real-life social interactions (Selman, 1980) and the personality attributes of television characters (Reeves, 1968) we hypothesized the following model:



We expected an age-related progression beginning with naming and describing singular, familiar characters and their physical appearance(1); succeeding through the gradual realization of behavioral and psychological traits shared among characters, associations with other characters and the context of the show (2); and culminating in an elaborated understanding and ability to predict how characters will perform as well as their relationships and influences upon one another (3).

While an early emphasis on behaviors and appearance of single characters is consistent with the literature, the more sophisticated awareness of interpersonal dynamics hypothesized in our model's third level of cognition is not. According to Selman, five-year old children are generally egocentric in their perceptions of others, projecting their own thoughts and desires and showing a general inability to consider the existence of conflicting points of view For a child to know that on Sesame Street Bert will always be angry with Ernie because Ernie will always do something annoying, requires a more objective analysis--a fuller understanding of the characters' ongoing relationship than is normally attributable to a five year old child. This age child would more often focus on one side of an interaction within a specific episode.

While Reeves (1979) documents a similar developmental shift in emphasis

from superficial traits to inferred personality attributes, his sample consists of children in elementary and junior high schools. Extrapolating downward to our preschool sample, we should find these five-year olds no more divorced from a dependence on external information than the third graders in Reeves' study.

Why, then, should we anticipate this uncharacteristically high level of reasoning in four and five year olds? Perhaps it is a function of the repetitive nature of television itself. The typical fare of preschoolers compounds this predictability with highly stereotyped puppets, benign adults and two-dimensional cartoon characters. Though unapproachable, the characters are consistent and far less complex than real people. In forming our hypothesis, however, we did not venture beyond the boundaries of the television screen to generalize about an overall development in social reasoning skills.

This study consists of a sample of three subjects followed closely over a three year period. The design--involving intensive examination with a small number of subjects, models the study of the sensorimotor period (1952, 1954) by Piaget, and Roger Brown's investigation into the origins of language (1973). Each involved three subjects and produced highly robust findings.

Method

Three[1] children participated in a three-year longitudinal study extending from the time they were two to five years of age. Subjects were seen bi-weekly in home visits lasting one and a half to two hours. During this time, approximately 1/2 hour of the children's natural television viewing was observed. The experimenter engaged the children in various television-related tasks designed to probe their knowledge and understanding of television content. A certain number of these tasks were specifically

[1]The sample originally included a fourth subject, a girl sufficiently unusual and laggard in her television viewing behavior and overall development to warrant exclusion from the analysis.

designed to elicit character-related information. For example, a game was played in which the child and experimenter alternately placed replicas of television characters behind their backs, provided one another with clues regarding the characters' attributes, and guessed which character was hidden. Another task involved retelling a story containing familiar Sesame Street characters, with a series of picture cards as stimuli. Often, the children were asked to act out their own stories, maneuvering the finger puppets (resembling characters from Sesame Street and popular cartoons) within a cardboard television frame. Such symbolic play revealed the child's understanding of characters' personalities and gauged how well the child incorporated such knowledge within their imaginary interactions.

Both taperecordings and supplemental notes obtained during home visits were consolidated into transcripts. The parents participated in bi-weekly interviews with the experimenter, kept diaries of their children's television-related comments and experiences, and responded to questionnaires provided by the experimenter on a quarterly basis. The results of their efforts as co-researchers were included in the data.

All instances in which characters were identified, described, or discussed were extracted from transcripts of home visits as well as from parent interviews and diaries. The majority of the childrens' character references were made in response to probes from the experimenter (67%), within the context of various tasks described above. Spontaneous comments comprised one-third of the data (33%).

Analysis

Categories were designed to approximate how a child organized the massive parade of personalities appearing daily on television. Character

references for each child were classified based on the manner in which children referred to the characters (correctly, incorrectly), whether the TV personalities were mentioned in one or several of the tasks/situations presented to the children, and which attributes the children noticed (ranging from outward appearances to more sophisticated psychological traits and interactions). Six major headings trace a developmental tendency for young children initially noticing external features (identification, appearance, associations, behavioral attributes) and gradually acquiring the ability to perceive and discuss character attributes on more internal(psychological attributes) and interpersonal (interactions) dimensions.

In addition to this overall trend toward increased abstractness among categories, we expected a dimension of increasing complexity within categories as well. The child was expected to begin by enumerating single traits or unidirectional behaviors and move to listing multiple attributes and discussing character interactions and relationships. (See Table I)

Category I: Identification

The identification category goes beyond the simple notion of correct and incorrect names of characters to a classification of the children's "near misses" or logical mistakes. Six possible responses within this category and corresponding examples are discussed.

(1) Does not know name or makes unrelated associations

Example 1: Does not know Roosevelt Franklin (Kathy 2:5)

Example 2: Calls Sanford "Frankenstein" (Donny 3:1)

(2) Incorrect names--a character might be identified by:

A) The title of the show in which it appears

Example: Lady Aberlin is called Mr. Rogers. (John 2:8)

TABLE I
CATEGORIES AND SUBCATEGORIES

I	II	III	IV	V	VI
Identification	Appearance	Associations	Behavioral Attributes	Psychological Attributes	Interactions
Does not know name	Size, weight, strength	Objects	Single traits	Single traits	Comparison
Incorrect name	Texture, material, skin	Other characters	Multiple traits	Multiple traits	Reaction
Visual confusion	Color	Immediate context	Complex Traits	Complex traits	One-way actions
Logical confusion	Clothing	Show	Elaborated traits	Elaborated traits	Series of actions
Verbal confusion	Body parts	Channel, time slot, day			Reciprocal action, awareness of relationship
Correct name	Categorization by overall appearance				

** Three independent judges scored twenty-five percent of the data by category and subcategory, and reached an average reliability rating of 89%.

B) The name of the more salient characters from the same program

Example: Tom Bosley is called "Fonzie". (Donny 2:7)

C) A characteristic of the show

Example: Ernie is called "ABCD". (Donny 2:4)

D) A character's role

Example: The count is called "1234". (John 2:5)

(3) Visual Confusion--There was cause for confusion between the visually similar monsters on Sesame Street, a major source of character references.

Example 1: Calls Cookie Monster "Grover". (John 2:4)

Example 2: Confuses Oscar and Grover. (Donny 2:4)

(4) Verbal Confusion--Some character names were relatively difficult for 2 and 3 year olds to pronounce. Thus, a verbal confusion resulted from a child's attempt to produce the character's name.

Example 1: Cannot say Mr. Snuffalupagus, but knows who he is. (John 3:8)

Example 2: Calls Sherlock Hemlock "Sherlock Sherlock". (Donny 3:4)

Category II: Appearance

The second category, appearance, classifies specific physical traits.

(1) Size

Example: Big bird is tall. (John 4:6)

(2) Strength

Example: Henry is strong; he can lift the barbell. (Donny 4:7)

(3) Texture, material or skin

Example 1: Grover is furry. (John 4:6)

Example 2: Big Bird has feathers all over. (John 4:7)

(4) Color

Example 1: Mr. Hooper is green and white. (Kathy 4:1)

Example 2: It's a white dog. (Donny 4:5)

(5) Clothing

Example 1: Mr. Rogers has on a black shirt. (Donny 4:5)

Example 2: Batman has a blue cape on. (Kathy 4:1)

(6) Body Parts

Example 1: Devil Dog's eyes are spooky. (John 4:3)

Example 2: Big Bird has yellow hands. (Kathy 4:3)

(7) Categorization by overall appearance--The child used relevant cues to produce a general label for the character, for example, monster or person.

Example 1: Grover is a monster. (John 4:6)

Example 2: Ernie is a big boy. (Donny 4:7)

Category III: Association

Associations or links between the characters and their worlds within and beyond the television set were recorded within this category.

(1) Associations to objects

Example: Ernie has a rubber ducky. (John 4:6)

(2) Ties to other characters

Example: Ernie is Bert's friend. (Kathy 2:1)

(3) Links to immediate surroundings

Example: Oscar lives in a trashcan. (Donny 4:6)

Associations which are removed from the immediate context of the character's world follow.

(4) Character to show association

Example: Batman and Superman are on "Superfriends". (Kathy 4:10)

(5) Character to channel, time slot or day

Example: Barry's on the "U". (John 3:5)

Example: Donald Duck is on Sunday night. (Donny 4:9)

Category IV: Behavioral Attributes

The child's tendency to notice and explain behavioral traits was demonstrated.

(1) Reference to single behavioral trait

Example: The Count is saying, "1, 2, 3, 4." (Kathy 2:11)

(2) Description of multiple behavior traits

Example: Mighty Mouse flies up onto the land and saves the day. (Donny 3:8)

(3) Explanation of a behavior using other attributes to describe the action

Example: He (Big Bird) not flies because he's very big. (John 4:2)

Category V: Psychological Attributes

As with behavioral attributes, this category of psychological traits (including character dispositions, emotional states or desires) reflects the child's developing ability to consider two or more attributes simultaneously.

(1) Single trait

Example 1: Cookie Monster is nice. (John 3:6)

Example 2: Oscar is mad. (Donny 4:7)

(2) Multiple traits

Example 1: Grover isn't scary or mean. (Donny 4:1)

Example 2: Bert is nice and funny. (John 4:2)

(3) Complex traits

Example 1: Herry's a nice monster. (Donny 4:7)

Example 2: Casper's a friendly ghost. (Kathy 4:11)

(4) Elaborated traits--(using other attributes to describe the action)

Example 1: Ernie feels good because he got juice. (John 4:10)

Example 2: Ernie's sad because it's raining and he wanted to play baseball. (Kathy 4:1)

Note: The distinction between elaborated traits for behavioral vs. psychological attributes lies in the main clause. In other words, "Ernie feels good because he got juice" is primarily a reference to his psychological state. Likewise, Ernie poured juice because he felt good", would have as its emphasis the behavioral action of pouring.

Category VI: Interactions

The final category involves references to more than one character and reflects the child's ability to shift back and forth between characters' two perspectives and to consider both at the same time.

(1) Comparison--The major focus is on one character, the other being the referent.

Example 1: Big Bird isn't as strong as Herry. (Kathy 4:1)

Example 2: Bert is older than Ernie. (Donny 4:7)

(2) Reaction--The main character acts in response to the situation or to another character's behavior.

Example 1: Bert feels fine 'cause they all went home. (Kathy 4:1)

Example 2: Oscar feels good 'cause Big Bird dropped his ice cream. (Donny 3:7)

It should be noted that the reasons for the other character's initial behaviors ("they" going home or Big Bird dropping his ice cream) was not clear. In the account of the interaction, the child centers on the primary character's behavior.

(3) One-way action--One character uses an object or otherwise acts to effect a reaction from another.

Example 1: Ernie has a drum. He's waking up Bert. (John 4:2)

Example 2: Oscar yells at Mr. Hooper, "Open up your store." (Donny 4:9)

(4) Series of actions--The child shifts back and forth between the separate character's actions. There is still no sense of true interaction.

Example 1: Big Bird dropped his and Mr. Hooper came and gave him another one and he liked it and he ate it all up. (Kathy 4:4)

Example 2: A little boy is walking down the street when the Incredible Hulk can't see him and then IH jumps down and then he sees the boy and then he kills him. (John 4:6)

These actions are strung together by the conjunction "and". The listener is unclear about the child's grasp of either character's motivation.

(5) Reciprocal action or awareness of relationship--This most sophisticated and difficult subcategory involves a circular action/reaction between two characters.

Example: They're sad now because Bert said "Get out of here." (John 4:8) Because Bert is trying to sleep, "they"(the rock band members)cannot continue playing with Ernie even though they want to. A friction between "they" and Bert is evident. The character's conflicting motivations are more clearly implied in their behaviors than in earlier examples.

Results

A total of 1157 character references were recorded for the three year period under examination. The data were coded for computer analysis, with each line including the following information: child age in months, character number, general or situation specific, correct or incorrect, spontaneous or elicited, category and subcategory. A number of statistical analyses were performed in an attempt to answer the following questions. Over the three years, what percentage of the data: a) reflects general vs. situation specific knowledge; b) is spontaneous rather than elicited; c) is correct or incorrect; d) falls in each category and subcategory for each child during each year.

Chi squares were computed for the last question, to see if the children

were relying on particular subcategories more than others and whether there was a common pattern over time when the three were compared.

A. General Analysis of Data

The three to one ratio of general to situation specific information is a reflection of the type of tasks within which the characters were presented. Children referred to characters most often in the framework of a story; the questions from the Experimenter tended to be general in nature, (e.g., Is Oscar usually mean? Does Bert usually get angry with Ernie?)

	John	Donny	Kathy	Total
SS	27.8%	23.5%	25.6%	25.6%
Gen	72.2	76.5	74.4	74.4

Whether the information was spontaneously produced by the children or elicited by either the experimenter or the parent was recorded:

	John	Donny	Kathy	Total
Elicited	71.5%	67.6%	62.7%	67.3%
Spontaneous	28.5	32.4	37.3	32.7

It is clear that the majority of the data was obtained through probes by the experimenter, rather than spontaneously.

Whenever possible, the data was coded for correctness of response. The overall results showed:

	John	Donny	Kathy	Total
Correct	84.0%	82.5%	80.7%	80.4%
Incorrect	14.4	14.9	17.2	15.5

B. Results by Year: Categories (See Table II for percentages)

During the first year of the study (2.0-3.0), all three children frequently used names of characters to discriminate one from the other. Donny and John also focussed on physical attributes while Kathy made numerous associations between characters and their surroundings. Physical attributes ranked next in importance for her.

The second year (3.0-4.0) showed decreasing emphasis on naming characters. For this year, Donny and John increased their descriptions of character's behaviors. Both boys made references fairly equally across other categories with the exception of John, who mentioned appearance attributes much less often than the other children. In her second year, Kathy (previously emphasizing external traits), mentioned psychological attributes of characters a third of the time.

In the third year (4.0-5.0) both boys zeroed in on behavioral and psychological attributes for almost half of their observations. Their next choice was physical attributes. Kathy reversed this order with a reference in the physical category more often and behavioral attributes next. Her third category choice was associations.

The sixth category, interactions, was not a major alternative for these children until the third year of the study. John incorporated references to character interactions into his discussions at an earlier point than the other two, in his second year. Donny and Kathy catch up by the third year, with Kathy making the most dramatic leap from 4.4 (age 2.0-3.0) to 15.4 (age 3.0-4.0).

Chi square tests were performaed for each child's category usage over the three year span. The results were significant at the .01 level in each case (John: $X^2 = 155.42$, d.f. = 10; Donny: $X^2 = 182.11$, d.f. = 10; Kathy:

TABLE II

PERCENTAGE OF DATA BY CATEGORY FOR EACH CHILD BY YEAR

	Age in years		
Identification	2.0-3.0	3.0-4.0	4.0-5.0
John	53.3	29.3	4.7
Donny	71.7	42.9	9.0
Kathy	41.9	28.9	7.3
Physical Attributes			
John	20.0	1.3	18.1
Donny	13.2	10.0	16.6
Kathy	13.7	5.9	29.1
Associations			
John	11.1	18.7	13.2
Donny	5.7	8.6	14.4
Kathy	25.0	9.6	16.9
Behavioral Attributes			
John	2.2	29.3	26.4
Donny	3.8	25.7	23.1
Kathy	9.7	18.5	19.6
Psychological Attributes			
John	11.1	10.7	23.5
Donny	3.8	7.1	22.6
Kathy	8.1	32.6	11.7
Interactions			
John	2.2	12.7	14.1
Donny	1.9	5.7	14.2
Kathy	6.0	4.4	15.4

X^2 = 774.99, d.f. = 10). This indicates an important shift in focus within the three year period from naming and physical descriptions (the first three categories) to considerations of behavior, personality and interactions (the latter ones).

A closer look at the subcategories will give us a better understanding of how complex these descriptions have become.

C. Results by Category

1. Identification. The children make numerous identification errors during the earlier years of the study. Three types of errors were most common: logical confusions, verbal errors (not knowing the names) and visual mix-ups (referring to a character who looked like another).

At 2.0-3.0, John makes numerous identification errors due to a logical confusion between character and show or function. He is accurate one-third of the time. At 3.0-4.0, he correctly names the characters 64% of the time. Errors tend to be in not knowing the name or in verbal confusion.

In the first year of the study, Donny correctly names characters 60.5% of the time. His errors are logical, verbal and visual. By 4.0, he is accurate 86.7% of the time, making only a few of the same types of errors as previously. This holds through the third year as well (87.0% accuracy. By 5.0, he is correct 96% of the time.

While Kathy improves her rate of accuracy in naming the characters over the three year period (67.3%, 79.5%, 83.3%), she also continues to make the same types of errors, logical and verbal.

2. Appearance. Character's body parts and facial expressions were the primary focuses in the first year. In the second, these proved salient as well, though data is less conclusive. By the third year the children were more inclined to discuss the characters as they would be categorized by their total, overall appearance--integrating details into a recognizable whole. Character's size, weight, strength, color, and texture were more frequently described.

The children did begin to describe several bits of information, multiple attributes, by the latter part of the study. For example, instead of listing traits separately--Grover is blue, Grover is furry, Grover is nice, they began to embed adjectives and use more sophisticated combinations such as--Grover has blue fur and he's nice.

3. Associations. Early associations are made between character/show, character/object, and character/context. There seems to be two trends drawn from this category. Identifying characters by the immediate context or surroundings is a fairly uniform point of emphasis. Within the television world, children refer to character dwellings in terms of houses, streets and towns. Big Bird's nest or Barny's hometown of Bedrock are salient features for these children.

There is, as well, a gradual increase for two of the children (Kathy, John) in their use of the character to character associations. For example, when one mentions Bert, the immediate association is usually Ernie. Regardless of one's understanding of the relationship between these characters, an association is based upon their shared presence in the Sesame Street program.

4. Behavioral Attributes. The pattern begins with each child's emphasis on single behaviors, and moves toward elaborated ones. The three

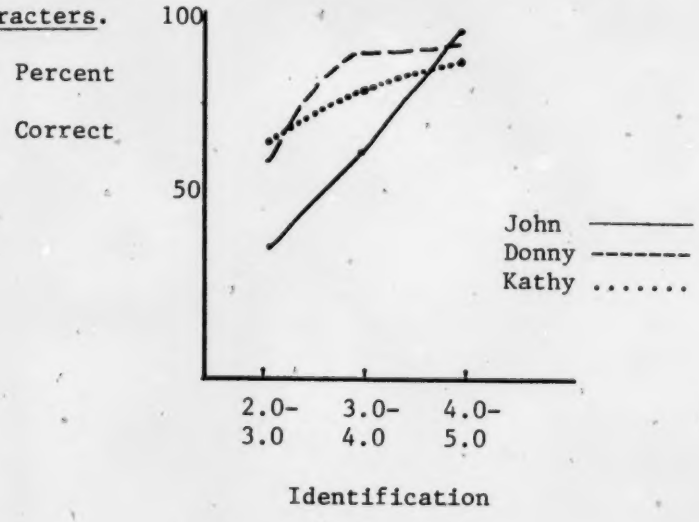
children have in common a developing ability to elaborate on the characters' behaviors, motivations and consequences.

5. Psychological Attributes. Once again the children begin with a focus on single characteristics and advance toward multiple, more complex ones. The pattern is indeed similar to the description of behavioral attributes in characters. The children continue to emphasize single traits, but develop the ability by the time they are four years old to consider more than one trait at a time, and to elaborate upon them.

6. Interactions. The last category is the most sophisticated both conceptually and verbally. None of the children uses it to a significant degree until 4.0. John and Donny are similar in their consistent descriptions of reactions, while Kathy centers on series of actions. All three are late in their ability to describe reciprocal actions, with Kathy using this subcategory proportionately more often that the two boys.

C. Summary of Developmental Trends.

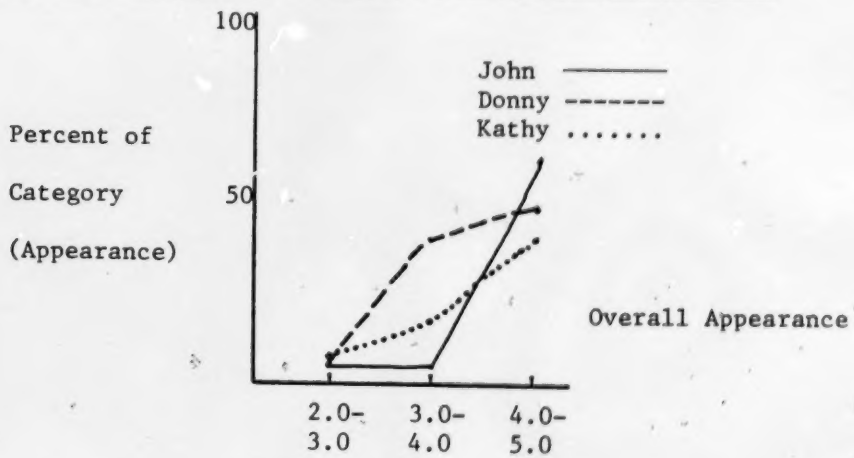
1. The children become increasingly competent in their naming of characters.



The three children improved in their ability to correctly name characters presented to them or appearing in tasks or on television, at very different rates. The graph show Kathy's steady climb from 67.3% to 83.3%; Donny's more sudden second-year jump to 86.7% from 60.5%, which leveled off at 87%; and John's meteoric rise from 33.3% to 96.2%, by age 5.0.

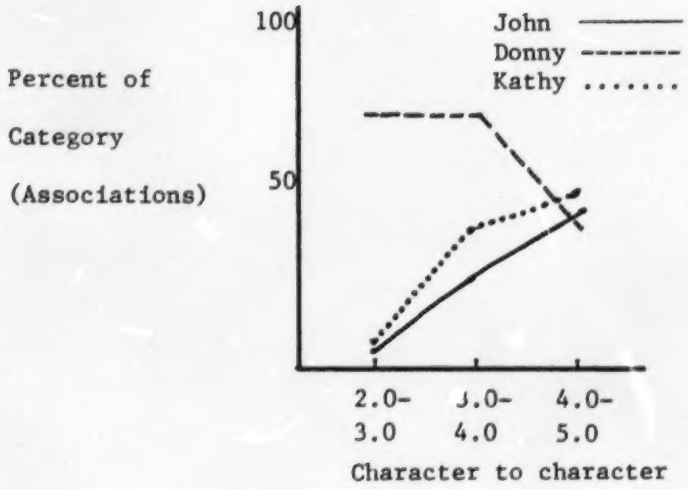
Their general confusions, captured by the subcategories of visual, logical and verbal errors, generally disappeared after 3.0, reflecting the increased exposure to the various characters, as well as a developmental improvement in verbal ability.

2. The children move away from a focus or details to the use of more integrated labels or characterizations by overall appearance.



John shows the greatest amount of change in the third year, as his more detailed categorizations outweigh his reference to singular attributes. The other two children show greater reliance on overall labels, as compared to the specific details they previously articulated with more frequency.

3. The children make character to character associations with increasing frequency between the second and third years.

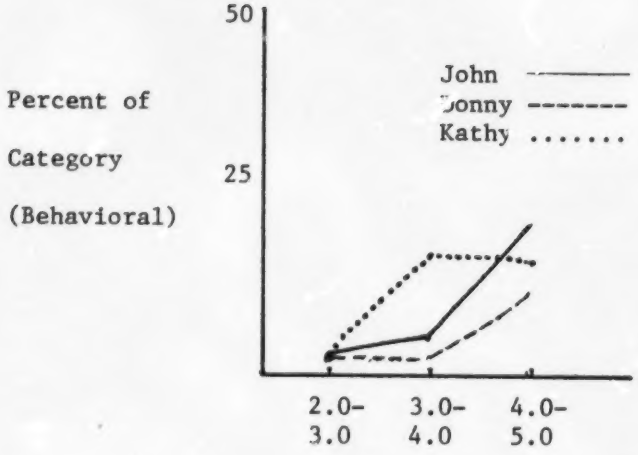


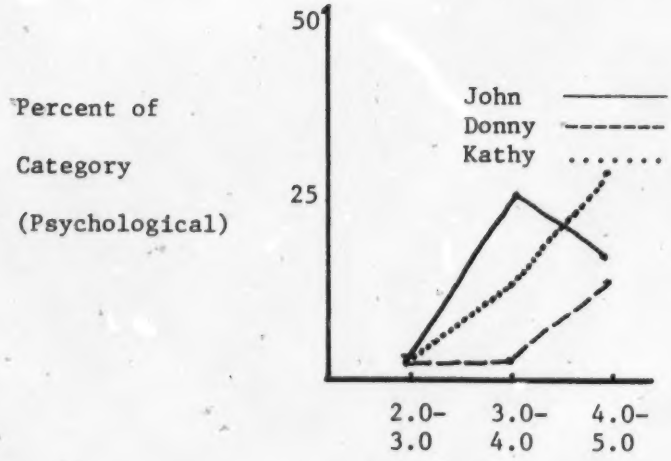
John and Kathy parallel one another as they increase their references to general character labels. (Donny is the exception here.) These labels occurred more frequently than other references.

4. Decreased attention to single attributes, both behavioral and psychological, in favor of multiple and elaborated traits.

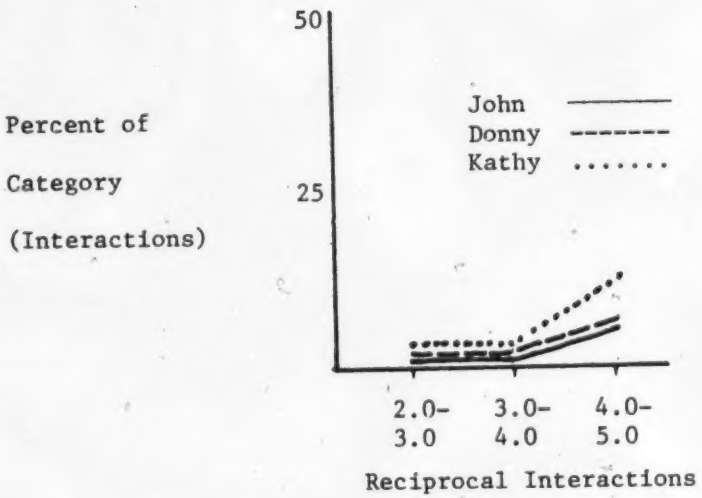
Though decidedly small, there is a uniform increase in the use of more elaborated behavioral and psychological attributes. John shows the greatest amount of variance between the two categories, while Donny is the most consistent.

The children are still strongly inclined to mention one trait at a time in their descriptions of various characters.


50
25
Percent of
Category
(Behavioral)
John
Donny
Kathy
2.0-
3.0
3.0-
4.0
4.0-
5.0
Elaborated Traits


50
25
Percent of
Category
(Psychological)
John
Donny
Kathy
2.0-
3.0
3.0-
4.0
4.0-
5.0
Elaborated Traits

5. <u>While the children describe two-character interactions in predominantly unidirectional terms (reaction, one-way action, and series of actions) earlier in the study, there is a sharp increase in their articulation of reciprocal interactions by the fifth year of life</u>.

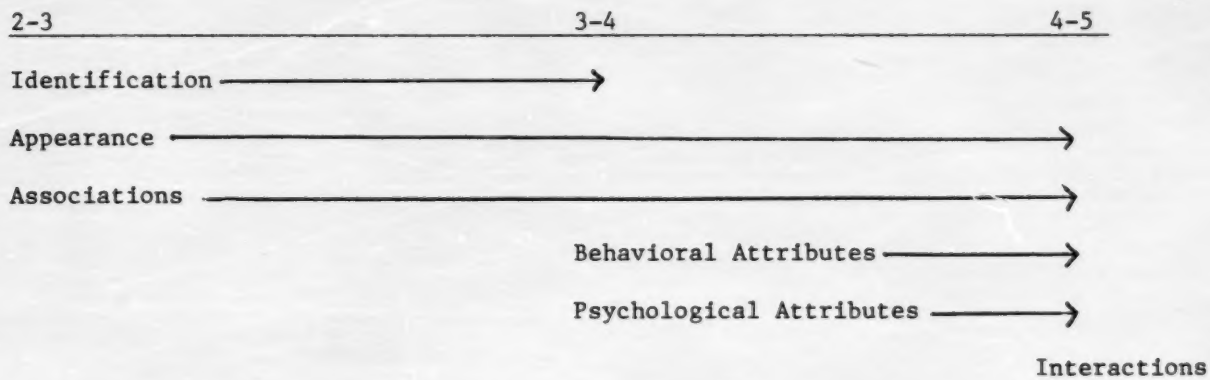


The inability to consider more than one viewpoint came through as children initially presented interactions in terms of one character, reacting or acting upon another, much as it would an inanimate object. An intermediate stop was an alternating focus categorized as the series of actions [illegible] category. The child does not seem aware of a relationship or interweaving of motivation. Both characters are allowed a perspective and have equal weight in the interaction. It is no more than an additive listing of actions, first one character's then the other's.

Finally, a sense of a prior understanding emerges, and concurrently a capacity to express circular action-reaction dynamics between characters. For example, Ernie's irresponsibility and questions make Bert angry, and their objectives are always at odds. Nevertheless, such interpersonal friction does not negate their friendship and provides an important dimension for general understanding of an adversarial relationship.

We have seen the very beginnings of such an ability in John, Donny and Kathy to articulate these understandings, and a deepening awareness of certain relationships among TV characters presented via television.

6. Overall pattern of categorization can be captured in the following chart:



Discussion

We hypothesized an age-related ability to perceive connections between television characters. We find in the results summarized below, evidence of just such a development. First the child establishes the identity of individual characters. Then he describes them, first in isolation, later in relationship to their contexts and associations. Finally, the child links the characters by elaborating on behavioral and psychological interactions typical of their relationships.

Age 2 to 3 Years: Establishing Identity

During the first year of the study, the two year olds devoted over half of their comments to the naming of characters. There was some confusion, related to the visual similarities of several Muppets on Sesame Street. Children seemed to describe other characters by the names of the shows on which they appeared. Most of the time, however, the two year olds were correct in their use of characters' names, establishing the television personalities as discrete entities.

Children also showed an interest in describing the physical appearance by listing separate attributes: all-encompassing or integrated labels (e.g., monster, lady, boy) were not used. To a lesser extent, those children were also concerned with the characters' surroundings, both immediate context or show, and objects.

In summary, the two-year old's strategy for organizing characters identities consists quite logically in naming them, describing how they look and placing them in their appropriate surroundings.

3 to 4 Years: A Closer Inspection

By three years of age, the children begin to expand their awareness of the behavioral and psychological attributes of characters. The knowledge of their names and external features is now augmented by a more sophisticated

interest in what the character does, what kind of a person he is, and how he feels.

Throughout the study, all three children tend to enumerate traits singularly rather than in combination. It is during the second year of the study (3.0-4.0) that they begin to use more multiple and elaborated attributes in describing the characters. This indicates a more complex, th ugh still restricted, concept of television personalities.

Concurrent with combining traits, the children also match up characters. The child hasn't achieved an abstract understanding of relationship, rather he simply knows the characters "go together". They may be friends or they may simply appear on the same show. Moreover, interactions the child describes are unidirectional, one character either acts upon or reacts to another. Rarely does the child string together a series of actions, wherein the focus alternates between the characters. However, the cognitive limitation underscored here is the same in all the descriptions the children have thus far offered: they tend to focus on one aspect of the situation at a time, and are unable to discuss complete interactions with consideration of both participants simultaneously.

By the end of the second year of the study, the child's concept of character appears to have rounded out to a surprising extent. Television personalities are described in detail, and the child begins noticing networks of psychological and behavioral traits within character and linking character within a common environment.

4-5 Years: Making Connections

From ages four to five, the children further develop their ability to perceive and discuss the attributes within and connections between characters. First they integrate the various physical attributes, actions and character's personality traits into categories such as "monster", "person", or "puppet".

Their classification system relies less on lists of adjectives or behaviors, and is organized more efficiently into types of characters.

Second, the children improve their ability to discuss interactions between characters; such interactions are notable for their reciprocal, action-reaction dynamic. Two characters can not only do things together, they can do things to each other, affecting each others' behaviors and feelings. They exist within a relationship.

The emergence of this abstract awareness is not complete. When examined in the context of the total interaction category, it comprises but a small portion of the data. We feel, however, that this early appearance is in itself remarkable. Here, in these five year old children, is the tiny glimmer of a more mature understanding of personal dynamics, of higher stage reasoning.

We are reminded of the question raised in the introduction to the study. Might this precocious social-reasoning result from daily exposure to an essentially repetitious medium? In both the difficulties they pose and the speed of the developmental progression that characterizes their mastery, do media sterotypes fall somewhere between real people and purely physical objects? Children can manipulate their inanimate environment. Their testing is more controlled, and the outcome more predictable than in either the real (living) or the television world. Additionally, the evaluation of human relationships is far more likely to produce inconsistent results than an examination of television characters.

Donny's describing Oscar as always mean could mostly refer to his learning how the letter "m" is always pronounced. Likewise, Kathy may know that Bert and Ernie are friends because they always appear together, rather than it reflecting her understanding of the underlying concept of friendship. Articulation of subtle personality traits or relationships may mirror a reflexive understanding rather than an abstract one.

Young children, then, more easily describe television characters than their own real-life relationships. Their understanding of character connections may solely reflect a reinforced response to repeated exposure of predictable interactions.

In conclusion, the parade of characters inspires children to make sense of the individuals, pairs and groups that march daily through their living rooms. They work with an undeveloped conception of people and relationships, and limited information. Nevertheless, their five-year-old observations reveal the kernel of a later, more advanced level of social reasoning.

Acknowledgements

This study was supported by a grant from the John and Mary Markle Foundation. Preparation of this Technical Report was facilitated by a grant to Harvard Project Zero from the National Institute of Education (G-78-0031).

We owe thanks to several people: the children and parents involved in the project, for their cooperation, help, and enthusiasm; Project Zero members Martha Vibbert, David Fernie, Laurene Meringoff, Hope Kelly, and Cindy Char for their conceptual contributions; Erin Phelps and Elynn Finkelstein for invaluable statistical and editorial assistance; and to Howard Gardner, Co-director of the Project, for his constant inspiration, support, and guidance.

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Harvard Project Zero is a basic research program at the Harvard Graduate School of Education. Its original charge was to study creation and comprehension in the arts and means toward better art education. A prime objective throughout the Project's history has been to provide a sound theoretical and experimental base for effective education of artists and audiences. The Project began in the fall of 1967 in response to the frank admission that, however much is known about how to educate in science and how to evaluate scientific work, practically nothing is known about the underlying principles of how to teach and evaluate in art. From that challenging "zero" the Project took its name and tasks. Our research methods include rigorous conceptual analysis, investigation of relevant literature, design and execution of key experiments in psychology and other fields, visits to arts education institutions, and application of results to proposing and assessing programs in art education.

Project founder and former director Nelson Goodman's book Languages of Art (Bobbs-Merrill, 1968) has provided important direction in our effort to isolate and investigate basic skills. This work sets forth a "theory of symbols," a broad treatment of elements of communication, embracing words, gestures, diagrams, paintings, poems, musical scores, and so on. Almost all the psychological processes under consideration in our studies of the arts involve extensive operation with and upon symbols of various kinds. These symbols are not merely instruments of communication, but also instruments of cognition, tools in terms of which the mind deals with the perceptual world.

Some of our research has examined the psychological implications of the theoretical models of symbol systems introduced in Languages of Art. For instance, one question is whether different information processing skills are necessary to produce effective art within linguistic, versus nonlinguistic, symbol systems. Another, complementary approach emphasizes problem solving and search strategies in the moment-to-moment perception and production of a work of art. How do subjects search for rhyme words in poetry or explore alternative placements of pieces in collage? A favorite means of developing and testing new models is through the study of errors. By using impoverished or ambiguous stimuli, assigning tasks somewhat too difficult for a subject, or working with brain-damaged subjects, one can elicit patterns of error-making which suggest hypotheses and select between alternative models of a process. These approaches characterize many of the Project's investigations mentioned below in a list of Project members and their particular interests.

Though the development of actual curricula in arts education is not a primary concern, the Project does contribute to the field of practical education. Project members have responded to inquiries and requests to comment on curricula from teachers in the field. Establishment of Harvard Summer School's Institute in Arts Administration resulted from the Project's reply to an inquiry from the director of the Harvard Summer School, and members of the Project staff cooperated in planning the Institute, in preparing material, and in the actual teaching. Consideration consultation has been provided to schools, museums, television, and a variety of arts institutions by members of the Project.

The Project has also sponsored a series of lecture-performances in various media, designed to give the general public and prospective public school teachers and administrators better insight into and attitudes towards artists and the arts. As the series title "Art in the Making" suggests, the purpose of the lecture-demonstrations was to reveal something of the artist's way of working, rather than to display his products. In the presence of an audience free to ask questions, each artist explored alternatives, exposed some constraints of his medium, compared his various efforts, and searched for the right effect, choice by choice.

While maintaining a major concern with the arts and art education, the Project, under its current co-directors, has considerably broadened its field of inquiry and now investigates a whole range of topics in the area of cognitive psychology. One part of the Project has focussed particularly on developmental studies. Among the topics currently being investigated are the emergence of symbolic capacities during the first years of life; the development of literary abilities, specifically the capacity to produce and appreciate metaphors and stories; children's understandings of the various worlds presented on television; the emergence of drawing skills; and the breakdown of various symbol using capacities under various forms of brain damage. The other part of the Project has concentrated on studies in the areas of cognitive and perceptual psychology, ones which utilize both normal adult subjects and gifted artists. Among the topics investigated recently have been critical judgment and the sources of critical disagreement in adults; the thought processes of professional and amateur poets and painters in developing works; the role of geometric principles in visual perception and picture perception particularly; reasoning about everyday matters and the logical difficulties people encounter.

A list of recent papers which can be purchased from the Project is available upon request.